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# THE REHABILITATION OF THE DROUGHT AREA

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*An Address delivered by*

THE HONOURABLE JOHN BRACKEN  
BEFORE THE CANADIAN CLUB OF WINNIPEG  
OCTOBER 25TH, 1934

# The Rehabilitation of the Drought Area

17/7/60  
MR. CHAIRMAN, MEMBERS OF THE CANADIAN CLUB AND GUEST FRIENDS:

As the chairman has said, I am to speak to you this afternoon on the Rehabilitation of the Drought Area.

The subject was not of my choosing; nevertheless, I make no apology for discussing it before the Canadian Club.

## A PROBLEM OF NATIONAL CONCERN

The problem of drought has now reached such proportions on the Great Plains of United States and Canada that it is no longer a problem for individual farmers, and no longer one for a few communities. It is not a problem for individual provinces or states; it is now, and for some time has been, a problem of concern to the nations as well. In my judgment it never will be adequately met without the fullest co-operation of the public and every governing body affected, and certainly not without a large measure of co-operation and of financial support from the national governments in both countries.

## THE DROUGHT—A MAJOR CATASTROPHE

At the outset of my remarks, may I express the pleasure it gives me to have the opportunity of meeting the members of the Canadian Club. I regard it not only as a very great privilege but as a great responsibility as well,—the responsibility of presenting to you the outlines of a situation that in recent years in some areas has assumed the proportions of a major catastrophe.

My remarks, necessarily, will be brief; they will, therefore, touch only the fringe of the subject.

I do not propose to announce any major governmental policy—this is neither the time nor the place for that. It is my desire only to make a humble contribution to the discussion of this subject, in order that it may help the public generally to understand it, so that any constructive policies that may later be formulated may have the encouragement and support of an informed public opinion.

## OUTLINE OF REMARKS

I shall first outline some of the main aspects of the drought situation. I shall then refer to some of the basic facts relating to the problem. I shall follow this with a discussion of some possible ways of coping with it, and will conclude my remarks by attempting to answer several questions that I know are in the minds of many of you. Among these are the following:

Shall we let time work its own remedy at whatever cost?

If not, What can we do to rehabilitate the affected area? To prevent the recurrence of similar conditions in aggravated form when another cycle of dry years comes around? To prevent the farther encroachment of drought conditions on adjoining lands?

Upon whom rests the responsibility for attacking the problem?

What should be the nature of any programme decided upon?

## CONDITIONS IN THE DROUGHT AREA

The first questions that one is generally asked are: "What is the Drought Area?" and "What are the conditions there?"

To satisfactorily answer these, one should have in mind two things—the normal moisture conditions in the Prairie Provinces, and the immediate drought situation of the past two to five years.

As to the normal rainfall conditions of this area, they might be summarized in half a dozen brief statements.

#### WESTERN CANADA—SEMI-ARID

Western Canada, on the whole, is a dry country. The average rainfall varies from 12 to 14 inches in some parts, to 21 inches per year in others. The climate, therefore, is semi-arid, as it is on about one-quarter of the earth's land surface. It is not like another quarter of the earth's surface, which has less than 10 inches of precipitation and is, therefore, arid; and it is unlike a full half of the earth's land surface, which enjoys from 20 to 100 inches or more per year, and is therefore humid or semi-humid.

In the drier parts of the West the rainfall is not adequate for a crop every year. The device of summer-fallowing, therefore, has been developed in order to help conserve a portion of one year's moisture for the use of the next year's crop.

#### SOME PARTS OF "WESTERN CANADA RECEIVE LESS RAINFALL THAN OTHERS

Here, in Southeastern Manitoba (Winnipeg), we enjoy 21 inches of precipitation, or more than any other part of the prairies. West of us 100 miles it drops to 18 inches; west another 100 miles it drops to 14 inches, and so on down to 12 or 15 inches in Western Saskatchewan and Eastern Alberta. Then as the rising land, approaching the foothills of the Rockies, is reached, the precipitation increases slightly. The region of lowest precipitation is along the Alberta-Saskatchewan border, and, generally speaking, the annual rainfall increases both easterly and westerly from that line.

#### SOME SEASONS ARE DRIER THAN THE AVERAGE

There are wide departures from the normal rainfall. As an illustration of this, the average precipitation at Calgary is 16½ inches. In one year it was only 8, and in another it is reported as being over 30.

#### A CYCLE OF DRY YEARS MAY OCCUR

Not only are there occasional dry years, but occasionally a cycle of dry years occurs. To illustrate: at Pierson, in Southwestern Manitoba, the average precipitation for a seven months' period in the years 1925 to 1928 was 17 inches. The average for the past four years was but 8½ inches, and to date this year it is 3.94 inches.

#### LOSS BY EVAPORATION GREATEST IN SOUTH

In the southern parts of the West the loss of moisture by evaporation is greater than in other parts. This is due to somewhat higher temperatures and greater frequency of dry winds, and is the chief reason why crop production on the northern plains of Canada has been more successful than in the zones of equal precipitation on the more southerly plains of United States.

#### THE "DRY BELT"

In Canada, generally speaking, the precipitation is lowest in Western Saskatchewan and Eastern Alberta, and increases both easterly and westerly from there. Evaporation being greater in the South than in the North, the net result is that drought conditions are generally more severe in Southwestern

\* "Western Canada," as used in this address, refers to the three Prairie Provinces—Manitoba, Saskatchewan and Alberta.

Saskatchewan and Southeastern Alberta. Sometimes they become severe in adjoining areas as far east as Southwestern Manitoba, as far north as Central Saskatchewan, and as far west as the foothills of Alberta.

### NATURE'S MAP OF THE PRAIRIES

If you could lift yourselves up over Western Canada and look down on Nature's map of the prairie provinces, you would see a base line over eight hundred miles long, north of which are our Canadian prairies, and south of which are the prairies of United States. Above that base, the northern boundary of the Canadian prairies extends from near the southeast corner of Manitoba in a northwesterly direction to the North Saskatchewan River in Saskatchewan, then west to Central Alberta, then south to the American boundary. North of the prairie area lies the partially wooded or park belt, 50 to 100 miles in width, and north of this again, the forest area, some 300 miles in width, interspersed in places in Northern Alberta with patches of open or partly open land. Beyond this forest belt lies the treeless plains and hills of the Arctic Region.

So much for our general rainfall or moisture conditions.

### THE IMMEDIATE SITUATION

With the immediate drought situation in the West you are more or less familiar. It, too, might be reviewed briefly:

The rainfall in many places in the past two to five years has dropped to little more than half the normal.

Crops have failed in large areas in Saskatchewan, and in parts of Southeastern Alberta and Southwestern Manitoba.

Soil drifting, resulting from the high winds, dry weather and the continuous cultivation of land for annual crops, has increased to an extent never before known.

In six Municipalities in Southwestern Manitoba the production of wheat dropped from over 8,000,000 bushels in 1926 to less than one per cent. of that amount this year, or from slightly more than 22,000,000 bushels in the four year period 1925 to 1928 to about  $4\frac{1}{3}$  millions in the past four years. The value of the wheat, oats and barley produced dropped from \$10,200,000 in 1928 to less than \$100,000 this year. It dropped from thirty-seven and a half million dollars in the four years ending 1928, to less than two and a half millions in the past four years.

Multiply that situation by ten or more, and you will have a picture of what has happened in parts of Southern Saskatchewan. Multiply it by two or three, and you will have a picture of what has occurred in Southeastern Alberta in the same period.

The volume of wheat produced in the West has decreased from five hundred and forty-five million bushels six years ago, to two hundred and sixty-five millions this year. The production of oats has decreased from two hundred and ninety-seven millions, to one hundred and ninety-six millions, and the production of barley from one hundred and twelve millions to forty-nine millions. The shipment of grain from one point in Southern Saskatchewan was 633,000 bushels in 1928 and but 30,000 this year.

The value of the grain and other agricultural products, as a result of low prices as well as low yields, dropped in the four years ending 1933 to a sum eighteen hundred million dollars less than in the four years ending 1928.

I shall not relate the harrowing details of the situation in which scores of thousands of the pioneers and descendants of pioneers of the prairies find

themselves. It is sufficient to say that many millions of dollars of public funds have been poured into these areas, chiefly into Southern Saskatchewan but also into Southeastern Alberta, and in some degree into Southwestern Manitoba. Had this not been done, on a scale hitherto unknown and never expected, it is estimated that a quarter or more of the southern part of the Canadian plains would have been, of necessity, temporarily abandoned.

Add to the thirteen municipalities affected in Southwestern Manitoba nearly half the plains of Southern Saskatchewan and millions of acres in Southeastern Alberta, all areas where farmers are either partially or completely without crops and feed for animals and require some assistance from outside—add these together and one gets some idea of the magnitude of the immediate problem.

The spectacle of shortage of food in large farming areas, and the necessity of shipping livestock away from hitherto prosperous and productive communities, and of shipping in thousands of carloads of feed for animals and scores of carloads of food for human consumption, in order to prevent widespread distress and abandonment of land on a wholesale scale,—this spectacle is not a pleasant one to contemplate, and one that you and I and two million others on these plains must try as far as possible to prevent in future.

It is cold comfort to know that this year, on the great open plains extending for a thousand miles south of the forty-ninth parallel, crop conditions in many parts are even worse than they are north of that line.

#### WHAT IS THE REMEDY?

I have related to you some unpleasant facts, omitting only the distressing details of the economic condition of the people directly affected. It is, however, of little avail to point out misfortunes unless we, at the same time, indicate a remedy.

What is the remedy? What are we to do about it, if anything?

These questions have been asked in a thousand places in recent days, and he would be a wise man, and a courageous one, who could answer them with confidence and with faith in the outcome of his plans. Nevertheless, they are questions which must be answered, and about the answer there must be no equivocation.

#### PLAN NOW OR SUFFER AGAIN

If we are not to witness similar distress at recurring periods in the future, we must pool our brains and our experience, and in the light of past history formulate such policies and execute such plans as will adequately meet the contingencies, which are sure to arise occasionally in the future, just as they have in the past.

We must make intelligent plans to meet recurring periods of drought, or the agriculture, as we know it, of the drier parts of our western plains will eventually pass out of existence altogether.

#### A CHALLENGE TO THIS GENERATION

Is it better, as some have said, to let time and economic conditions determine the future of these areas at whatever price in abandoned farms and disappointed human lives? Or can we rehabilitate the vast areas now temporarily in a state of partial desert? Can we prevent a recurrence of these conditions? Can we avoid the still further encroachment of the drought area upon adjoining lands?

These are vital questions which challenge the practical wisdom of this generation. They are a challenge to our scientific skill, to our statescraft and

to our administrative ability. They are a challenge to you and to me and to half a million others directly affected in these areas.

### **BASIC FACTS**

In approaching any such problem, the first essential is to discover the basic facts. Unless this is done, faulty conclusions are sure to be drawn from wrong premises. Opinions and hopes are a poor foundation upon which to build a structure expected to stand the storms and vicissitudes of a dry and somewhat variable climate.

What are the basic facts relating to the drought situation? There are four sets of them.

### **THE AMOUNT AT STAKE**

The first relates to the amount at stake in the area in question.

In thirteen municipalities in Southwestern Manitoba, the value of the land and improvements amounts to fifty-six millions of dollars, not including the investment in railways and in highways. Multiply that by ten—or more probably twenty—and you get some conception of the material investment at stake in the drier portions of these prairie plains.

But the potential value, as well as the material investment, deserves consideration. In four crop districts in Southern Saskatchewan between 1910 and 1933 there was produced thirteen hundred million bushels of wheat, valued at twelve hundred and eighty million dollars.

A decision to let the matter take care of itself ought not to be made without taking into account the investment at stake and the record of wealth production in past years. Obviously, judged from this light, there can be but one decision, namely, to face the problem as intelligently and as sanely and as courageously as we can.

### **THE IMPORTANCE OF WATER TO AGRICULTURE**

A second set of basic facts has to do with the importance of water to agriculture. In this respect, three things stand out prominently.

First, the prosperity of the West depends primarily upon crops. The control of crop yields and the maintenance of soil production are problems that directly affect the prosperity of both the individual and the State. I am well aware that this is not an audience of farmers, but I know that there is not a man among you but is vitally interested in the success of agriculture on these northern plains. If agriculture fails, not one of you will have permanent success, while if agriculture languishes our whole prairie civilization will suffer.

Again—not only does our prosperity depend chiefly upon our crops, but water is an absolutely essential requirement for crop growth. It may surprise you to know that it requires more than half a ton of water falling upon the land in the form of rain, conserved in the soil by the tillage of the farmer, taken up by the roots of growing plants and passing out through their leaves, in order to carry into the plant tissues enough soil nourishment to produce one pound of wheat.

The less water that falls upon the land and the less stored in the soil, the less wheat or other crop will be produced.

The third relative and basic fact is that in our dry areas water is the chief limiting factor in crop yields. It is, therefore, of fundamental importance that, where it is likely to be scarce, every ounce of it should be saved that can be saved, and none should be wasted that can be stored in the soil.



### THE WATER SUPPLY

The third set of basic facts relates to the water supply of the West. As I have already pointed out, the whole prairie area has a low average rainfall, and it is lower in Western Saskatchewan and Eastern Alberta than elsewhere, and the loss from evaporation is highest in the South.

It has not been pointed out, but it should be recognized, that owing to the greater evaporation in the southern part of the prairies, the same rainfall there does not produce as much wheat as it does in the more northerly areas in the same precipitation zone.

It has also been pointed out that wide variations from the average precipitation occur from time to time, some years having but little more than half the normal; and what is of vastly more significance, a cycle of a number of dry years following one another may occur.

These are known facts which man cannot alter. He can plan to lessen their ill effects, but he cannot change in more than a minor way the inexorable laws of nature.

In this connection, it is perhaps well that we should remind ourselves that wet years will come again, that the Southwest will again blossom and that many will forget the times through which we are now passing. But, just as wet years will come again, so dry years and dry cycles will follow; and with each recurrence of them the bad effects they bring will be rendered worse if we do nothing now, and they will be made better if we act wisely now. They will be made better only by the degree to which effective plans to offset and minimize them are now made and carried out.

### MAN'S CONTRIBUTION TO THE DROUGHT

The fourth set of basic facts relates to man's contribution, favorable or otherwise, to the present situation.

Let us by all means be hopeful of the future, but let us not fail to recognize that man cannot change the cosmic forces of the solar system. Nothing that man can ever do will double the rainfall in a dry year. Nothing that he can do will ensure a crop when rain fails to come in reasonable quantities for any considerable period.

But what man may do is to modify the immediate environment of his soil in such a way as to either intensify the bad effects of dry years or, on the contrary, to lessen and to some extent avoid them. Man can influence the amount of rain that may be stored in the soil, add the amount that may be retained there, and he can influence its efficiency in producing crops. He can save more of the "run-off." He can lessen the loss from evaporation. He can protect his soil from wind erosion. That much he can do. That much it is our duty to help him to do.

It is unfortunate, but it is true, that in the past two generations man has worked to his own present disadvantage as far as the water supply in our dry areas is concerned. In seeking how to get his crops in early, in order to avoid frost and rust, and in building roads and ditches for transportation and drainage purposes, he served well his immediate needs, but it is now shown that these practices have not utilized to the best advantage the moisture provided in the form of rain and snow. It is his privilege now, by redirecting his activities, to reverse this effect where necessary. It is within his power to lessen the severity of the dry cycles, instead of intensifying them.

### *RECONSIDERATION AND REDIRECTION*

In my judgment some of our forestry policies, some of our drainage practices, and some of our soil management and cropping methods need reconsideration and redirection in the light of the apparently increased danger of drought.

We have been cutting trees and burning forests; we must plant trees and protect the forests.

We have over-drained some of our lands; we must commence to regulate and maintain the water table rather than to lower it further.

We have tilled some of our virgin soils until we have injured their texture; we must modify our tillage methods now, having their altered condition in mind.

We have plowed some soils that should never have been broken; we must correct that error and prevent as far as possible its repetition.

We have drawn heavily upon the bank account in our soil without making any deposit there; we must now on many soils find some satisfactory modification of that policy. We must counteract the twin fallacies that "soils will not wear out" and that "fertilisers are no good in a dry climate or in a cold climate."

### *FUTURE PROGRAMME*

What, then, in the light of recent years, is to be our programme from now on?

#### *ABANDON THE DRY LAND?*

Some say, let the greater part of the drought area revert to the wild state and not waste any more money on it.

This has already been done in some parts of Southeastern Alberta, from which in recent years three thousand families, with their six thousand cars of effects, have been transferred to northern parts. No doubt some additional areas of submarginal land should be treated in this way, but that attitude to large areas would be a most fatal one. If we admit that the problem is not worth tackling, if we give it up as a hopeless task, we might as well default at once.

#### *PLANT WIND BREAKS*

Some say plant wind breaks.

This is being undertaken in United States. There, the Federal Government has set aside \$75,000,000.00 to plant 100 strips, each a mile apart and 7 rods wide and 1,000 miles long in an area stretching from near the western end of the Manitoba border southward through North Dakota, South Dakota, Nebraska, Kansas, Oklahoma and into Texas. It is a plan that will require the purchase of nearly 14 million acres of land from nearly 300,000 different persons. It will necessitate the construction of 300,000 miles of fencing and the production and transplanting of more than 3,000,000,000 trees, a task requiring eight or ten years to complete and ten or fifteen years more before much protection will be afforded.

We have areas in Western Canada that should be treated somewhat similarly. The provision of shelter belts would lessen evaporation, would help hold snow in winter, would protect contiguous lands, would eventually yield wood and perhaps some timber; it would give employment, and tend to prevent the waste of land by wind and flood.

### DAM THE STREAMS

Some say dam up our streams and hold the water back.

This is being done in many of the humid, as well as in the drier, countries of the world. More recently it is being done on this continent, and even in our own province.

Damming streams should be a prominent part of any rehabilitation or conservation programme here. Drainage of surplus water is, of course, necessary but unnecessary waste of water is a crime. Some day we shall look upon water as a sacred element and guard it as we would a sacred possession.

Damming streams is a deliberate policy of the United States on much of the poorer land in the dry areas. It is also their determined policy to remove from cultivation and put under grass or trees much of the submarginal land now under cultivation. There are places in the ranching areas of the West where the latter plan should be followed.

A score of other proposals, each having more or less merit, have been advanced, but time will not permit reference to them.

### WHAT IS BEING DONE TO MEET IMMEDIATE NEEDS

Before deciding what, if anything, we should do to try to cure the situation, let us consider for a moment what has already been done and what is being done to meet the immediate needs.

In the past four years the Municipal, Provincial and Dominion Governments have assisted people in the drought areas in the same manner that they have assisted the unemployed in our cities. In Manitoba, unemployment relief has been provided in the Southwest the same as in other parts and in addition \$210,000.00 has been either paid or loaned to make possible the seeding of crops where they would not have been seeded, and for the maintenance of a minimum of livestock on the farms.

In Saskatchewan tremendous sums have been spent for "relief," a large part of which has been for seed and feed for stock as well as for relief for human beings. In Alberta also large expenditures have been made.

### RELIEF IN THE DROUGHT AREA

The relief policy in the drought area of Manitoba, aside from the relief plans for human beings which is uniform wherever needed is, first of all, to move livestock to sections of the Province where feed is plentiful. Farmers have been encouraged to make their own arrangements with other farmers in more favored parts of the Province. In addition to this, the Province has offered the use of certain provincial forest reserves. However, it has been necessary to use only two of the reserves to any extent because of the large number of mutually satisfactory arrangements that have been made between farmers who had stock and no feed and farmers who had feed but insufficient stock.

In the movement of livestock out of the district, half the freight has been paid by the governments, prior to September 1st, 1934, by the Provincial Government alone, and since September 1st, 1934, by the Provincial and Federal Governments on a 50-50 basis. The railways granted a reduced rate of one-half the regular rate.

The municipalities themselves passed a rule limiting the quantity of livestock each family would be allowed to retain—five horses per farm and one cow for each member of family—and farmers were told that they must either

look after any additional stock or reduce the number to that decided upon, which was regarded as sufficient to work the farms and for other local needs.

Feed and fodder for livestock to be wintered in the district is being supplied, and the cost is being met as follows:

The freight costs on the movement of feed and fodder into the district have been reduced by the railways to two-thirds of the regular rates. During the period March 31st, 1934, to September 1st, 1934, the cost of freight payable to the railways at the reduced rates was paid two-thirds by the Provincial Government and one-third by the municipalities. The Dominion has been asked to share in the amount paid by the Province. Since September 1st, 1934, municipalities and farmers are relieved of any portion of cost, and this is being shared on a 50-50 basis by the Dominion and the Province.

In Area "A," the most seriously affected, the Provincial Government is paying in addition one-third of the actual cost of purchase of feed and fodder. The situation, therefore, is that farmers are being relieved of all cost, in "A" Area, except two-thirds of the actual purchase cost of feed and fodder. In "B" Area they are relieved of all cost of freight, but are charged the full cost of feed and fodder.

In Area "A" the municipalities finance two-thirds of the purchase price of feed and fodder, and in "B" Area the full purchase cost, dealing with the matter as a loan to the farmers and taking the farmers' promissory notes for repayment.

To date some 32,000 head have been shipped out of the district and 34,000 remain.

Since October 1st, one year ago, 850 tons of fodder have been shipped in.

It is estimated that the requirements for this year will be

35,000 tons of fodder,  
302,000 bushels of seed, and  
300,000 bushels of feed.

The Provincial Government is loaning to the municipalities the money necessary for this purpose. We, in turn, borrow the required funds from the Dominion.

#### INDIVIDUAL CONTRIBUTIONS TO THE DROUGHT AREA

A year ago this fall the Provincial Public Works Department organized a drive for the collection of vegetables, canned foodstuffs, clothing and other articles badly needed in the drought area. The appeal was given publicity through churches, agricultural societies, Red Cross branches and by radio talks.

The response was splendid and a total of 83 box cars, containing vegetables of all kinds and other foods, was moved into the districts, the railways moving the cars without freight charges.

This year the same policy is being followed. The minister in charge of each church in the province outside the drought area was appealed to. Radio talks were given. Splendid support was received from all quarters, the Manitoba Free Press carrying a story on the drive every day for two weeks.

The response up to date has been more than generous. In the Greater Winnipeg area alone, which of course is not an agricultural district, three box cars crammed with vegetables of all kinds have been donated, and have been shipped to the area. Two cars have been shipped us from Northern Ontario. In Minnesota the potato crop was not particularly good this year, and the local

people collected \$162.00 for the purpose of purchasing a carload of potatoes and shipping it to the area. The apple growers in British Columbia have been most generous in sending carloads from their surplus. All told, up to date this year a total of 71 cars, including 33 cars of vegetables and 18 cars of apples, have been arranged for.

It is occasional evidences such as this, of the spirit of goodwill and human kindness, that makes life worth living for those in public places in times like these. Too much cannot be said in commendation of this attitude on the part of scores of thousands of people. It is a spirit which is excelled only by the gratitude of those who are the recipients of the voluntary contributions, men and women whose courage and fortitude have been sorely tried over a long period, but whose spirit still refuses to admit defeat. The donors may forget the gifts they gave, the folks in temporary distress will never forget the spirit which prompted their generosity.

### RELIEF NO CURE

The provision of relief to those in need is necessary and, of course, will be continued, but it neither cures any economic ill nor does it do anything to prevent its recurrence.

### SOLVING ONE PROBLEM HELPS CREATE OTHERS

In the past forty years, we have done much to meet a variety of problems. Too much credit cannot be paid the pioneers of every community. They met their problems as they arose.

Unfortunately, however, some of our activities have made the present drought conditions worse. Let us note what we have done.

We have cultivated 40 million acres of land and have removed from it its natural grass covering, thus facilitating the blowing off of snow in winter and the drifting of the soil in summer.

We have all too often over-grazed our pasture lands, reducing their absorptive power for rain and lessening their ability to hold snow.

We have built roads by the tens of thousands of miles and on each side have dug ditches to hurry away the surplus water, often creating serious flood conditions on the lower lands adjoining.

We have even killed our beaver which once dammed back our streams and helped save the spring "run-off."

We have created drainage areas. In Manitoba, we have 24 of these with 3,600 miles of ditches and over 2,000,000 acres drained at a cost to the settlers of more than \$6,000,000.00. These served the purpose for which they were intended, but they, too, hurry away to the sea the surplus moisture of their own and other lands.

We have cut some of our forests and made it possible for the melting snows and heavy rains to find their way more quickly to the ocean.

Most of these things were necessary to meet the circumstances of the time in which they were done. They no doubt accomplished much good, but whatever else they may have done, they have aided in bringing other problems in their trails.

As a result of these and other practices, we have increased the dangers of floods in early spring and the probability of dried up streams in mid-summer. In other words, in solving the drainage problem of early spring on our high lands, we increased the danger of spring floods on the low lands, we made

necessary the spending of large sums to prevent flood damage in spring and we intensified the drought problem of the summer months. We created a situation where some of our larger streams do not in the late summer carry sufficient water to care for the sewage from our cities.

In addition to these things, we have worked some of the organic matter out of our land rendering it less able to hold moisture and less likely to resist drifting by the wind.

We have also made our soils poorer by taking from them in crops all they would yield of their wealth with little or no return of plant food.

We have drawn heavily upon the capital in our soils and in so doing have lessened the efficiency of moisture in producing big yields, since the poorer a soil is, the less crop a given unit of water will produce.

These are some of the ways in which, unintentionally man has contributed to making the situation worse. But let us not criticize him too much for that. What he did, you and I would have done had we been in his position. He solved the problems that were his, even though he helped bring on others in their places.

We cannot wholly reverse some past policies in order to cure our present difficulties. If we are wise we shall weigh the situation in each case, recognize that we have intensified one problem while solving others and work out a balanced programme to best meet the requirements of each set of conditions.

Our skill in this respect will be measured not by our agility in jumping from one programme to another but by our ability to properly evaluate the conditions before us and by the development and application of sane, well-considered, long-time policies that will gradually rehabilitate the areas now temporarily in distress, prevent the extension of these conditions to other areas and lessen the dire results of the subsequent drought cycles that are sure to come.

#### UPON WHOM IS THE RESPONSIBILITY?

Upon whom rests the responsibility to initiate and carry out sane policies? Does it rest upon the unfortunate individuals who find themselves surrounded by the discouraging conditions of drought? Does it rest upon the local communities and municipalities which find themselves in the same difficult plight? Neither of these has either money or credit. They cannot solve these problems unaided.

Does the responsibility rest upon the provincial or state governments? Shall we the Government of Manitoba, after our experience in trying to get revenue to meet our present essential services, impose still heavier burdens upon our people in order to help restore the Southwest? Who is there among you who will say yes to that?

Does any responsibility rest upon the Federal Government? If so, how much?

It must be very clear to anyone who has given thought to the matter that no one of these is wholly responsible for a recovery programme. The individuals affected cannot save themselves, the municipalities involved have little revenue and no credit, the provinces affected can do something but are hampered by reduced revenues and increased expenditures for relief. The Federal Government, while it should be expected to co-operate, ought not to be expected to carry the whole load.

### A JOINT EFFORT NEEDED

It must be very clear to all that the problem has now assumed proportions of national scope. It is surely self-evident that it can be adequately met only by the generous co-operation not only of individuals and local communities and provinces, but of the Dominion as well. What is needed is

1. The offer by the provinces of the services of such technical men and departments, without charge, as can be utilized in the prosecution of such a major project.

2. The appointment by the Dominion of a co-ordinating body to correlate the thousand and one efforts being made in a variety of directions by many individuals, both in and out of public service, and by many departments both of governments and of universities.

3. Provision by the Dominion for the necessary additional finances to ensure the successful carrying out of a sane, well-balanced programme over the next ten years:

4. The active and sympathetic and generous co-operation of individuals, communities, railways and governments in a joint effort to solve a major problem.

### A CO-ORDINATING BODY ESSENTIAL

A joint effort on the part of the provinces and the Dominion is important, but a co-ordinating body to correlate and direct the programme is essential. This would seem to offer the greatest hope of success with the least outlay of money.

### WHAT SHOULD BE THE NATURE OF THE PROGRAMME OF SUCH A BODY?

In my judgment, there should be a four-fold programme: a programme of reclamation of the drought area; a programme of rehabilitation of the farms within the drought area; a programme of conservation for the whole West; and a programme of sound development of all our land resources.

### RECLAMATION

The Reclamation Programme should provide for a thorough survey of the area affected or likely to be affected. Such a survey should include a soil survey, a topographical survey, a survey of the native vegetation, a survey of the precipitation, temperature and other climatic records, and a review of the record of agricultural production. The report should be accompanied by specific recommendations regarding agricultural production plans for each separate soil zone.

The Reclamation Programme should also provide for the creation of forest or grass land reserves on any obviously inferior land areas. It should provide for tree planting for protective purposes on the open land. It should provide for the construction of dams in streams, wherever economically feasible, and it should provide for the construction of dugouts for water storage purposes on lands where stream water is not available and where well water is not obtainable or is for any reason unsuitable. It should provide for an intensive programme of education on the best methods of soil management and crop production in areas of low precipitation, and where the soil is likely to drift. It should emphasize the necessity of saving the "run-off" water, and of lessening evaporation and wind velocity.

### REHABILITATION

The Programme of Rehabilitation should provide for the rehabilitation of the farmers' finances, his buildings, his fences and his machinery

In connection with the rehabilitation of the farmers' finances, the creditor institutions should be called into conference, and I would like to hope a definite policy of generous debt reduction agreed upon. In connection with rehabilitation of his buildings, fences and equipment, some provision for loans for the restoration of these to a normal state of repair should be found, otherwise we shall all profit less because a number are hampered in their wealth-producing efforts by inefficient equipment.

### CONSERVATION

The Programme of Conservation should provide for the conservation of water, the conservation of our forests, and the conservation of soil fertility, not alone in the dry belt but in the whole area.

In connection with water conservation, a thorough survey of all our streams and underground waters as well should be entered upon, and, as suggested for the rehabilitation of the drought area, dams should be constructed wherever practicable, wind breaks established on all open areas, suitable tillage and soil management practices encouraged, and "run-off" and evaporation losses minimized.

In connection with the conservation of our forests, our present forest reserves should be more carefully guarded, the boundaries, wherever practicable, should be extended, new reserves should be established on all lands not suitable for agriculture but suitable for trees, and tree planting on a generous scale around farmsteads for protective purposes, and eventually for wood, should be provided on every farm in the open plains.

In connection with the conservation of the soil the truth about the necessity of the maintenance of its productive power should be made more widely known, the necessity for guarding its texture and organic content and the most practicable and profitable means of doing so, should be the object of a thorough and continuous educational campaign.

### SOUND DEVELOPMENT OF LAND RESOURCES

The Programme of Sound Development of our Land Resources should commence with the Government Land Department, and apply to every owner of land in the Province. It should require the withholding from sale for farming purposes of all Government land likely to be found submarginal. It should provide for a thorough survey of all new agricultural areas before putting them on the market. It should provide for the development of suitable farm management practices for each type of soil under each different set of climatic and economic conditions. It should encourage the adjustment of our tillage methods to new conditions and it should provide for the modification of our notions of soil fertility, by demonstrating that soils can be maintained and improved and the crops produced thereon increased by the intelligent use of fertilizers.

Nor should this be all. It is not sufficient to dam streams, and plant trees, sow poor land back to grass and follow the best soil and crop practices in the world. It is not enough to abandon poor land, to save the "run-off" water and to lessen evaporation losses. It is necessary as well, that we all take a



lessons from the history of the past, from Joseph's experience with corn in Egypt. Some provision for a reserve of seed and feed and money in the fat years must be encouraged, because dry conditions and grasshoppers and soil drifting and lean years are inevitable, and will come again in some degree in spite of our best plans.

### CONCLUSION

My final thought may be briefly stated. In regions of less than twenty inches of rainfall dry years are sure to come once in a while, and a cycle of dry years following one another will sometimes occur. We must come to look upon these not as unusual, but as expected conditions. Our plans should, therefore, be developed not in anticipation of favorable years always, but in expectation of unfavorable ones coming along occasionally without much warning.

Our own experience and the experience of other lands are in agreement, that we can meet these emergencies better than we have done. The responsibility is, therefore, upon us to plan to meet such unwelcome, but nevertheless expected times with a constructive programme.

That being the case, our duty is clear. There is only one road for us to follow. As rational beings we must shape our course as intelligently as we can.

We need a central co-ordinating body to bring unity and direction to our plans. The Dominion Government is the authority that should set it up.

We need the generous co-operation of all the Prairie Provinces. I would like to think that these provinces would come forward with the offer of their technical services and those of their universities, as their contribution to the task.

We need the advice of the best qualified technical men of the nation. It should be made available wherever it may be found, as a voluntary contribution to the state.

We need the co-operation of adjoining states and the United States Federal Government. Fortunately we have visible evidence that they will not be behind us in making these plans.

The programme, if it is to be worth while, will require large expenditures. The Dominion Government is the only government which can provide the necessary additional funds.

And it would be the part of wisdom to spend money in this way as a partial insurance against the necessity of having to spend much larger sums on drought relief every few years. It would be better, too, to spend it in wages for constructive work of this nature than as a dole to those who desire work, but for whom there is no job.

Gentlemen, this job is worth doing. I feel sure that there is no one here who holds an opposing view. Then let us face the task of organizing to see it through.

We have asked that it be a subject for discussion at the Dominion-Provincial Conference. Technical men everywhere are studying the question. Mr. Mains has made a valuable contribution. The Winnipeg Tribune has put its influence behind the move, the Free Press has given intensive study to the problem on the ground. Drought harassed farmers are holding the line while we organize the reinforcements, the time is ripe now for action.

My hope is, and I am sure your hope is, that we shall not fail to measure up to the responsibility that faces us in attacking the drought problem.

I thank you.

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